

ABSTRACT

An optical multiplexer/demultiplexer device is comprised of a wedged integrator block, a broadband mirror, and an optical band-pass filter. Collimated light introduced into the integrator block propagates by means of reflection from the mirror and band-pass filter. At each reflection, a portion of the light is transmitted through the band-pass filter. Since the integrator block is wedged, the incidence angle of the light and the wavelength sub-band that is transmitted change at each reflection. Thus the device can demultiplex a single light beam into separate beams, each containing a different wavelength sub-band, and each exiting the integrator block at a different physical location. Alternative embodiments are disclosed including an optical multiplexer, an optical channel equalizer, and an optical channel routing switch.